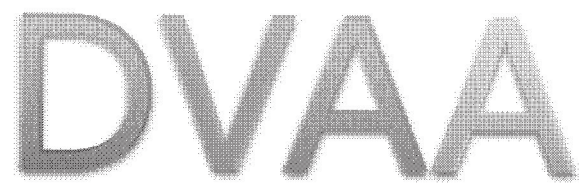


EXHIBIT 156



Display, Video Ads, Analytics and Apps

2017 Strategy Book

Version 1.2

Last Updated: 2016-08-29

GOOGLE CONFIDENTIAL AND PROPRIETARY

2017 Strategy Paper: Systematic Risks for the Open Web

Owner: scottspencer@

What are the next wave of systematic risks (like Ad Blocking previously) that threaten the health of the open web for content creators? What programs and partnerships should we build now to get ahead of those threats?

TL;DR:

There are many risks facing the open web – attaching access or the ability to monetize. Some are risks we know and have been addressing like ad blocking, fraud and net neutrality. Others are more complicated like “the shift for search to answers” and the rise of walled gardens that require new products, services, and approaches to mitigate.

Preface:

Google is predicated on “the open web”. We provide Search for it. We provide monetization tools for it. But what is it exactly? And what threats exist that could undermine it?

What is the open web?

To protect the open web, we need to define what it is – and specifically, identify the attributes that define it. Here we define the open web as the collection of content and sites, provided by individuals and corporations, that consumers can access through web-browsers on desktop and mobile devices.

The open web is enabled by two pillars:

1. Open Access and Choice – that consumers have open, unrestricted access to chose the content they want to consume. Content creators can create whatever they want.
2. The ability to monetize – that content, once made available to the open web, can be monetized so the content creators can continue to provide the content.

Threats to the open web:

The threats to the open web attack one of the two pillars.

Threats against open access & choice	Content curation (e.g., “Walled gardens”) provide value but restrict choice.	<ul style="list-style-type: none"> • WhatsApp • Facebook • Native apps • Amazon
	New devices / interfaces (e.g., voice) necessitate a single answer and therefore restrict choice and may require new forms	<ul style="list-style-type: none"> • Alexa • Allo

	of monetization	
	Entities and governments that impose access or content restrictions explicitly restrict access and choice	<ul style="list-style-type: none"> • Great firewall of China • Networks (e.g., Digicel, Facebook in India) • UK ISPs on adult content • Shine / UC Browser
	Solutions that go against “net neutrality” , even in promoting one service, implicitly restrict access of all others	<ul style="list-style-type: none"> • Data usage plans / cost of access • Fast-lanes
	Cost of access	<ul style="list-style-type: none"> • Expensive data plans (especially in emerging countries)
Threats against the ability to monetize	Actions that disrupt open monetization	<ul style="list-style-type: none"> • Ad blocking [see project magnolia] • Fraud [see DVAA concept paper on ad fraud] • Ad injection
	Areas or content types where open monetization performance is poor drive content creators to pay-for-access model	<ul style="list-style-type: none"> • Music • Too much advertiser (buyer) power
	Unfettered piracy shifts content away from channels where monetization is possible	<ul style="list-style-type: none"> • Content piracy • Torrents
	Pay-for-access implicitly takes content away from the open web [see DVAA concept paper on a Google Pay-wall]	<ul style="list-style-type: none"> • WSJ, FT, Netflix

Internal / Google specific threats:

In addition to the external threats on the open web, there are some internal threats where Google is at risk of losing our relationship with the open web:

- The open web is growing in areas where Google has fewer assets or focus (e.g., China and India)
- The usage of the open web tends to change with different age groups. We need to ensure we don't lose touch with key demographics
- Google is a target for competitors and regulations. We need to always be vigilant as 3rd parties identify and exploit Google specific threats.
- If 3rd party advertising is weakened, publishers may resort to 1st party solutions. While publishers may survive, this impacts Google's value proposition.

So, what can we do?

There are many Programs and Partnerships that Google can pursue to mitigate these risks.

Access and Choice:

- Maintain and enhance the open web – Google Search is one of the best representations of the open web. It provides consumers with many different options and opportunity for content discovery
- Be the curated access point – Walled gardens and content curation provide consumers benefit. Google needs to invest heavily in content curation and in the interfaces / apps / environments consumers desire to avoid ceding curation to others. Example: Allo, Google Play Newsstand.
- Acquire curated access points – Attempt to identify and acquire leading solutions to have a viable footprint.
- Create open, curated access points – In addition to owning the curated access point, Google should work to make APIs or means to allow content to flow to that curated access point.
- Continue to invest in open internet efforts – The more available “open” internet is to a population, the less likely consumers are willing to accept restrictions.
- Invest in “red teams” – ensure that Google isn’t tarnished by competitors or regulation by ensuring we uphold the highest principles and good practices.

Monetization:

- Provide monetization tools – Continue to invest in solutions for publisher monetization. This includes work on our core ads products (buy- and sell-side) as well as our anti-fraud and response to ad blocking efforts.
- Protect monetization ecosystem – Continue to invest in anti-fraud, ad block solutions for the industry.
- Transition off of 3rd party javascript, Flash – reduce the risk³ of malware which impacts both fraud and ad blocking.

Google Specific risks:

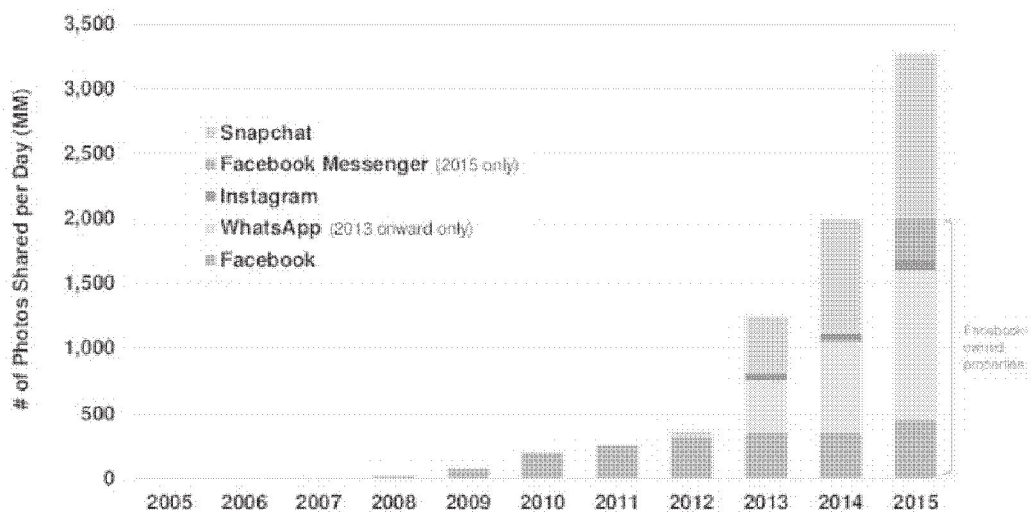
- Consider a trusted 1st party served partner network. This is more resilient to ad blocking.
- Invest in understanding India, China, younger demographics.

Supporting data / information:

The growth of walled gardens is significant:

³ 3rd party app stores, under-defended chrome plugin marketplaces, side-loading of mobile executable code, unlimited access of apps to https-content webviews -- all pose risks to spread or enable ad fraud malware.

Daily Number of Photos Shared on Select Platforms, Global, 2005 – 2015

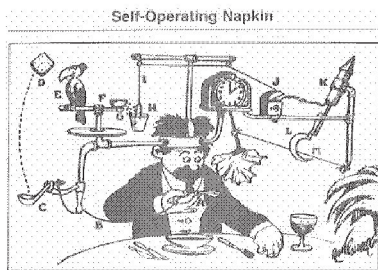


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2017 Strategy Paper: Advertiser AI

Expertise at every step of the workflow for all advertisers

Director / VP Sponsor: Jason Bigler, Woojin Kim
 Authors: Derek Dunfield, Tris Warkentin



Abstract: We aim to bring actionable expert advice into the AdWords and DoubleClick platforms through (1) auto-generating real 'best-of-class' examples of creatives, media plans, and optimization strategies that users can easily select, modify, and implement and (2) a user-friendly AI using NLP (Ad-sistant) to help advertisers navigate the complexities of campaign setup & optimization and give customized, personalized suggestions.

Problem Statement

Advertising is failing consumers, failing publishers, and failing advertisers. We know this because we measure success to the right of the decimal place.

For SMB advertisers, display advertising is too difficult. More than half of Google Advertisers don't have running Display campaigns, and only 11% rate themselves as "proficient" or better in using AdWords. On the other side, large brand advertisers on the DoubleClick platform must rely on agencies to determine marketing mix, manage budget, and design professional ads that live up to the expectations of their audience. This complex process often leads to siloed decision making, slow roll outs, and underperforming campaigns. For sure, it leads to an underwhelming ad experience for consumers.

Meanwhile, other platforms are capturing display advertisers from small to large by reducing functionality (Facebook has captured 2-3X as many display advertisers by focusing on simplicity in activation, creative design, optimization, and reporting) or offering full service support (OpenX, Criteo, etc.). **We propose a different solution: give every advertiser direct access to expert advice throughout the full campaign workflow.**

2017 Charter: Project Magnolia

Team Mission Statement

- Ads power the open web. But the current ad experience is broken. Many ads are intrusive, poorly designed and disrupt the consumers' activities, driving them to opt-out through ad blocking. Ultimately this undermines publishers' ability to openly supply content, and disrupts the larger Internet ecosystem. Our goal is to fix this and save the open web / mobile web ecosystem by ensuring higher quality, less disruptive ads are delivered to consumers while also letting publishers sufficiently monetize their inventory.

Leads

- PM: Scott Spencer
- Eng: Aparna Pappu, Bahman Rabbi
- UX: Neil Ramshaw

Headcount

- PM: 5
- Eng: 25(FT) + 25(PT)
- UX: 4

Annual A&C Level OKRs and KPIs

- Establish a V0 for Sustainable Advertising Standard; reach alignment with 10+ industry bodies
- Develop and finalize architecture and prototype for Thwarting solution; engage cross-functional team including Chrome on network design and operational impact of the plan

TL;DR:

Ad blocking is still a growing issue for Google and our publishers. Google has a multi-pronged approach to address it which starts with improving the ad experience via (global, industry based) standards. This is reinforced with a publisher ad wall, consumer choice, filtering of bad ads in Chrome, and tools to protect compliant ads.

Strategic Overview

Opportunity

Ad blockers are still growing 40% per year for desktop and 90% for mobile web⁴⁵, costing the industry \$22b per year and Google approximately \$3b. This is a threat to the open web. We need to protect the revenue loss for our publishers, but also establish a framework for a better, less intrusive consumer experience so users aren't driven to ad blocking in the first place.

What happens if we do nothing?

At the current growth rate of ad blocking (vs. growth of the internet) we could hit 100% ad blocking between 5-10 years though we expect it to asymptote at around 65%. In addition,

⁴⁵ PageFair & Adobe | 2015 Ad Blocking Report, PageFair | 2016 Ad Blocking Report